

What Is Claimed Is:

1. A magneto-optical recording medium, in which signal reproduction through irradiation with reproduction light is performed by domain wall displacement detection, comprising:

at least, in order from the side of incidence of the laser light for reproduction, a first magnetic layer constituting a reproduction layer, a second magnetic layer constituting a control layer, a third magnetic layer constituting a blocking layer, and a fourth magnetic layer constituting a recording layer, and wherein:

when the Curie temperatures of said first magnetic layer, second magnetic layer, third magnetic layer, and fourth magnetic layer are respectively T_{c1} , T_{c2} , T_{c3} and T_{c4} , the relations

$$T_{c1} > T_{c3} > T_{c2} \text{ and}$$

$$T_{c4} > T_{c3}$$

are satisfied;

when the magnetic anisotropy constants of the second magnetic layer and of the third magnetic layer are respectively K_{u2} and K_{u3} , the relation

$$K_{u3} > K_{u2}$$

is satisfied;

magnetic domain walls in said first magnetic layer in front of the irradiation spot of said reproduction light on said magneto-optical recording medium in the direction of travel are displaced toward the temperature peak portion occurring in proximity to the center of the reproduction light spot as a result of irradiation by said reproduction light, so that a recorded magnetic domain is expanded, and displacement in the spot direction of magnetic domain walls in said first magnetic layer behind the reproduction light spot in the direction of travel is suppressed; and,

said second magnetic layer and said third magnetic layer control the magnetic exchange coupling between said first magnetic layer and said fourth magnetic layer.

2. A signal reproduction method, which performs detection of reproduction signals in a magneto-optical recording medium through irradiation of reproduction light by domain wall displacement detection, wherein:

said magneto-optical recording medium has at least, in order from the side of incidence of the laser light for reproduction, a first magnetic layer constituting a reproduction layer, a second magnetic layer constituting a control layer, a third magnetic layer constituting a blocking layer, and a fourth magnetic layer constituting a recording layer;

when the Curie temperatures of said first magnetic layer, second magnetic layer, third magnetic layer, and fourth magnetic layer are respectively T_{c1} , T_{c2} , T_{c3} and T_{c4} , the relations

$$T_{c1} > T_{c3} > T_{c2} \text{ and}$$

$$T_{c4} > T_{c3}$$

are satisfied;

when the magnetic anisotropy constants of the second magnetic layer and of the third magnetic layer are respectively K_{u2} and K_{u3} , the relation

$$K_{u3} > K_{u2}$$

is satisfied;

magnetic domain walls in said first magnetic layer in front of the irradiation spot of said reproduction light on said magneto-optical recording medium in the direction of travel are displaced toward the temperature peak portion occurring in proximity to the center of the reproduction light spot as a result of irradiation by said reproduction light, so that a recorded magnetic domain is expanded, and displacement in the spot direction of magnetic domain walls in said first magnetic layer behind the reproduction light spot in the direction of travel is suppressed; and,

said second magnetic layer and said third magnetic layer control the magnetic exchange coupling between said first magnetic layer and said fourth magnetic layer.